

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Nystrom, <i>et al.</i>	§	Group Art Unit:	4163
		§		
Application No	10/596,859	§	Examiner:	Jama, Isaak R
		§		
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For: Bandwidth Signalling

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APPEAL BRIEF SUBMITTED UNDER 35 U.S.C. §134

This Appeal Brief is submitted to appeal the decision of the Primary Examiner set forth in a Non-Final Official Action dated July 21, 2010, rejecting claims 14-26, which are all of the pending claims in this application.

A prior appeal of a final rejection was filed on October 14, 2009; *the Examiner did not answer that appeal*, but reopened prosecution. **Accordingly, the previously-paid appeal fees should be applied to this appeal.** For any additional fees due to an increase in fees since the date of the prior appeal, the Commissioner is authorized to charge Deposit Account No. 50-1379.

Real Party in Interest

The real party in interest, by assignment, is: Telefonaktiebolaget LM Ericsson (publ)
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Related Appeals and Interferences

None.

Status of Claims

Claims 1-13 were previously cancelled and are not appealed. Claims 14-26 remain pending, each of which are rejected and form the basis for this appeal.

Status of Amendments

The claims set out in the Claims Appendix include all entered amendments. No other amendments have been submitted.

Summary of Claimed Subject Matter

Claim Element	Specification Reference
14. A method in a multicarrier wireless telecommunication system for radio communication between base stations and mobile user stations, comprising the step of:	Page 6, line 16, <i>et seq.</i>
detecting a presence of an acquisition channel by a mobile station for mobile station search purposes;	Page 4, line 30, <i>et seq.</i> Page 6, line 28, <i>et seq.</i>
transmitting information signals, over the detected acquisition channel, relating to size and location of operational bands of the radio spectrum used by the system;	Page 6, line 16, <i>et seq.</i>
wherein the information signals comprise information of the bandwidth and location in the spectrum of the operational bands as part of the information in one or more sub carriers of the bands.	Page 6, line 19, <i>et seq.</i> Page 7, line 2, <i>et seq.</i>

Claim Element	Specification Reference
23. A wireless multicarrier telecommunication system, comprising:	Page 6, line 16, <i>et seq.</i>
a traffic controlling centre; and,	Page 6, line 16, <i>et seq.</i>
transmitting units controlled by said traffic controlling centre, wherein the transmitting units transmit information signals relating to available resources of the system to mobile units on an acquisition channel, wherein the information signals comprise	Page 6, line 21, <i>et seq.</i>

information about the size and location of available bandwidth in a number of operational bands allocated to the system;	
whereby a mobile unit detects a presence of the acquisition channel and receives the information signals from the transmitting units over the detected acquisition channel.	Page 6, line 28, <i>et seq.</i>

Claim Element	Specification Reference
24. A base station node in a multicarrier telecommunication system, comprising:	Page 6, line 16, <i>et seq.</i>
transmitting means for transmitting information relating to properties of available operational bands of the spectrum allocated to the system, wherein the transmitting means include means for transferring data related to size and location of the available operational bands on an acquisition channel.	Page 6, line 21, <i>et seq.</i>

Claim Element	Specification Reference
25. A mobile station node in a multicarrier telecommunication system, comprising:	Page 6, line 28, <i>et seq.</i>
means for detecting an acquisition channel;	Page 6, line 28, <i>et seq.</i>
means for receiving information relating to size and location of available operational bands in terms of size and location in the radio spectrum from the acquisition channel.	Page 6, line 30, <i>et seq.</i>

The specification references listed above are provided solely to comply with the USPTO's current regulations regarding appeal briefs. The use of such references should not be interpreted to limit the scope of the claims to such references, nor to limit the scope of the claimed invention in any manner.

Grounds of Rejection to be Reviewed on Appeal

1.) Whether claims 14-20 and 22-25 are unpatentable, under 35 U.S.C. §103(a), over U.S. Patent No. 7,039,001 (Krishnan, *et al.*) and U.S. Patent Publication No. 2003/0169681 (Li, *et al.*); and,

2.) Whether claim 21 is unpatentable, under 35 U.S.C. § 103(a), over Krishnan, Li and U.S. Patent No. 6,650,655 (Alvesalo, *et al.*).

Arguments

Prosecution History

The Examiner first rejected claims 14, 15, 17-19 and 22-25 as being anticipated by Li, *et al.* (U.S. Patent Publication No. 2003/0169681); and, claims 16, 20 and 26 as unpatentable over Li in view of U.S. Patent Publication No. 2003/0081538 (Walton, *et al.*). In response, the Applicants entered a clarifying amendment to impendent claims 14 and 23-25 and submitted arguments traversing that basis of rejection. The Examiner then issued a final rejection; claims 14, 15, 17-19, and 22-25 were rejected as being unpatentable over Li, *et al.* (U.S. Patent Publication No. 2003/0169681) in view of Engstrom, *et al.* (U.S. Patent No. 5,909,436); claims 16, 20 and 26 were rejected as being unpatentable over Li in view of Walton, *et al.* (U.S. Patent Publication No. 2003/0081538); and, claim 21 was rejected as being unpatentable over Li in view of Alvesalo, *et al.* (U.S. Patent No. 6,650,655). The Applicants filed an appeal of those rejections on October 14, 2009. *The Examiner did not file a response to Applicants' Appeal Brief*, rather, the Examiner reopened prosecution and asserted a new basis of rejection for all claims, adding U.S. Patent No. 7,386,306 (Laroia, *et al.*) as the primary reference; *i.e.*, the Examiner rejected claims 14-20 and 22-25 as being unpatentable over Laroia and Li, and claim 21 as being unpatentable over Laroia, Li and Alvesalo. Laroia, however, *did not qualify as prior art*, which the Examiner acknowledged in a telephone conference on April 21, 2010. The Examiner subsequently withdrew that new basis of rejection and issued the present non-final office action on July 21, 2010. In the present office action, the Examiner has merely replaced Laroia with U.S. Patent No. 7,039,001 (Krishnan, *et al.*); *i.e.*, claims 14-20 and 22-25 are now rejected as being unpatentable over Krishnan and Li, and claim 21 is rejected as being unpatentable over Krishnan, Li and Alvesalo. For the reasons that follow, the claims are patentable over those references.

1.) CLAIMS 14-20 AND 22-25 ARE PATENTABLE OVER KRISHNAN AND LI

The Examiner has rejected claims 14-20 and 22-25 as being unpatentable, under 35 U.S.C. §103(a), over U.S. Patent No. 7,039,001 (Krishnan, *et al.*) and U.S. Patent Publication No. 2003/0169681 (Li, *et al.*). The Applicants traverse the rejections.

Claim 14 recites:

14. A method in a multicarrier wireless telecommunication system for radio communication between base stations and mobile user stations, comprising the step of:

detecting a presence of an acquisition channel by a mobile station for mobile station search purposes;

transmitting information signals, over the detected acquisition channel, relating to size and location of operational bands of the radio spectrum used by the system;

wherein the information signals comprise information of the bandwidth and location in the spectrum of the operational bands as part of the information in one or more sub carriers of the bands. (emphasis added)

The purpose of Applicants' invention is to inform a mobile station which *operational bands* of radio spectrum are used by the wireless system, including the size and location of such bands; the information signals transmitted on a dedicated acquisition channel include that information as part of the information in one or more sub carriers of the operational bands.

In the office action dated October 3, 2008, the Examiner rejected claim 14 as anticipated by Li. In the subsequent final office action dated April 14, 2009, the Examiner withdrew that basis of rejection and issued a final rejection of claim 14 as obvious over Li in view of Engstrom, acknowledging that "Li is silent to detecting a presence of an acquisition channel by a mobile station for mobile station search purposes and that the detected acquisition channel relates to size and location of operational bands." (emphasis added) What claim 14 actually recites, however, is "transmitting information signals, over [a] detected acquisition channel, relating to size and location of operational bands of the radio spectrum used by the system; wherein the information signals comprise information of the bandwidth and location in the spectrum of the operational bands as part of the information in one or more sub carriers of the bands." The Applicants filed a response traversing the new grounds of rejection,

but the Examiner maintained the propriety of the rejection in an Advisory Action dated July 21, 2009. The Applicants then filed an appeal of that basis of rejection on October 14, 2009. The Examiner, however, did not defend that basis of rejection, but reopened prosecution.

Subsequently to Applicants' first appeal, the Examiner's bases of rejection have not relied on Engstrom, but only Li and the teachings of Laroia (now withdrawn) and now Krishnan; *i.e.*, a tacit acknowledgement that Engstrom fails to teach those claim elements. Krishnan, however, also fails to cure the explicitly acknowledged deficiency in the teachings of Li.

As noted *supra*, the purpose of Applicants' invention is to inform a mobile station which *operational bands* of radio spectrum are used by the wireless system, including the size and location of such bands; the information signals carrying such information are transmitted on a dedicated acquisition channel and include that information as part of the information in one or more sub carriers of the operational bands. As those skilled in the art understand, an operational band includes a series of sub-carriers, as illustrated in Figure 1 of the application; illustrated are operational bands I, II and III, of which band II is shared by network operators A and B (see claim 21). It is information regarding the size and locations of such operational bands that is transmitted on a dedicated acquisition channel according to the principles of the Applicants' invention, which is not taught by Krishnan.

In now relying on the teachings of Krishnan for the essential elements of claim 1, the Examiner asserts that Krishnan teaches ". . . transmitting information signals over the detected acquisition channel [Columns 1 and 2, lines 62-67 and lines 1-3 . . .] . . . relating to size and location of operational bands of the radio spectrum used by the system; wherein the information signals comprise information of the bandwidth and location in the spectrum of the operational bands as part of the information in one or more sub carriers of the bands [Figure 5, column 11, lines 22-40 . . .]." The Examiner, *however*, is not clear as to which specific portion of Krishnan teaches the claim limitation of "wherein the information signals comprise information of the bandwidth and location in the spectrum of the operational bands as part of the information in one or more sub carriers of the bands." *Moreover*, the Examiner subsequently states that

"Krishnan does not specifically teach the location in the spectrum of the operational bands." (Office Action dated July 21, 2010; page 3; emphasis added) The Examiner then, ostensibly, looks to the teachings of Li to overcome that acknowledged deficiency. As noted *supra*, however, the Examiner acknowledged in the office action dated April 14, 2009, that "Li is silent to detecting a presence of an acquisition channel by a mobile station for mobile station search purposes and that the detected acquisition channel relates to size and location of operational bands." (emphasis added) The undersigned has reviewed all of the referenced portions of both Krishnan and Li and can find no teaching of:

- 1.) transmitting information signals, over [a] detected acquisition channel, relating to size and location of operational bands of the radio spectrum used by the system; or,
- 2.) wherein the information signals comprise information of the bandwidth and location in the spectrum of the operational bands as part of the information in one or more sub carriers of the bands.

Figure 5 of Krishnan, as referenced by the Examiner, illustrates a subband structure for subband multiplexing. There is no indication that any of such subbands are analogous to the subcarriers of the operational bands of a radio spectrum used by a multicarrier wireless telecommunication system, much less that an acquisition channel in such system can carry information signals relating to size and location of the operational bands, or that the information signals comprise information of the bandwidth and location in the spectrum of the operational bands as part of the information in one or more sub carriers of the bands. In looking to the teachings of Li to overcome the deficiencies in the teachings of Krishnan, the Examiner refers to Figure 1B thereof and the description relating thereto. Figure 1B relates to transmitting pilot symbols for use in selecting subcarriers. There is no teaching in Li, however, that an acquisition channel in such system can carry information signals relating to size and location of the operational bands of the radio spectrum used by the system, or that the information signals comprise information of the bandwidth and location in the spectrum of the operational bands as part of the information in one or more sub carriers of the bands. It appears that the Examiner is merely picking and choosing keywords from Applicants claim that appear in the prior art references, without consideration of the full claim limitations, their

function, or the overall invention. Nor has the Examiner established any basis for even combining the teachings of Krishnan and Li. Accordingly, the Examiner has not established a *prima facie* case of obviousness for claim 14.

Whereas independent claims 23-25 recite limitations analogous to those claim 14, those claims are also not obvious over Li in view of Engstrom. Furthermore, whereas claims 15, 17-19 and 22 are dependent from claim 14, and include the limitations thereof, they are also not obvious in view of those references.

2.) CLAIM 21 IS PATENTABLE OVER KRISHNAN, LI AND ALVESALO

The Examiner rejected claim 21 as being unpatentable, under 35 U.S.C. §103(a), over U.S. Patent No. 7,039,001 (Krishnan, *et al.*), U.S. Patent Publication No. 2003/0169681 (Li, *et al.*) and U.S. Patent No. 6,650,655 (Alvesalo, *et al.*). claim 21 is dependent from claim 14. As established *supra*, claim 14 is not obvious over Krishnan and Li, and the Examiner has not pointed to any teaching in Alvesalo to overcome the failure of those references to teach the transmission of information regarding the size and locations of operational bands on a dedicated acquisition channel. Therefore, claim 21 is patentable over the teachings of Krishnan, Li and Alvesalo.

* * *

CONCLUSION

The claims currently pending in the application are patentable over Krishnan, Li, and Alvesalo, and the Applicants request that the Examiner's rejections be reversed and the application be remanded for further prosecution.

Respectfully submitted,



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CLAIMS APPENDIX

14. (Previously Presented) A method in a multicarrier wireless telecommunication system for radio communication between base stations and mobile user stations, comprising the step of:

detecting a presence of an acquisition channel by a mobile station for mobile station search purposes;

transmitting information signals, over the detected acquisition channel, relating to size and location of operational bands of the radio spectrum used by the system;

wherein the information signals comprise information of the bandwidth and location in the spectrum of the operational bands as part of the information in one or more sub carriers of the bands.

15. (Previously Presented) The method of claim 14, wherein the location information is explicitly signalled or implicitly derivable from synchronisation signals.

16. (Previously Presented) The method of claim 14, wherein the signalling is received by the mobile user stations which detect the information about available blocks of spectrum and stores it into a memory.

17. (Previously Presented) The method of claim 14, wherein the size information is repeated regularly in subsequent carriers, or sub-carriers, of the operational band.

18. (Previously Presented) The method of claim 14, wherein the information comprises the start and stop frequencies of the band and, thereby, the bandwidth.

19. (Previously Presented) The method of claim 14, wherein the information comprises an identifying number representing the size and location of available operational bands.

20. (Previously Presented) The method of claim 16, wherein the mobile user stations repeatedly scan the information signalling for updating its memory about changing conditions relating to the operational bands.

21. (Previously Presented) The method of claim 14, wherein the operational bands belong to different network operators and wherein the subscribers of an operator may partly or wholly have access to the operational bands of another operator.

22. (Previously Presented) The method of claim 14, wherein a mobile user station requests access to a multicarrier band with N carriers for downloading information, comprising the steps of:

the mobile station searching the radio interface for an N -carrier band by looking for location and size information;

the communication system assigning a free band with $N+\epsilon$ carriers to the mobile upon the request where ϵ is zero or a small number compared to N ; and,

the mobile station downloads the information.

23. (Previously Presented) A wireless multicarrier telecommunication system, comprising:

a traffic controlling centre; and,

transmitting units controlled by said traffic controlling centre, wherein the transmitting units transmit information signals relating to available resources of the system to mobile units on an acquisition channel, wherein the information signals comprise information about the size and location of available bandwidth in a number of operational bands allocated to the system;

whereby a mobile unit detects a presence of the acquisition channel and receives the information signals from the transmitting units over the detected acquisition channel.

24. (Previously Presented) A base station node in a multicarrier telecommunication system, comprising:

transmitting means for transmitting information relating to properties of available operational bands of the spectrum allocated to the system, wherein the transmitting means include means for transferring data related to size and location of the available operational bands on an acquisition channel.

25. (Previously Presented) A mobile station node in a multicarrier telecommunication system, comprising:

Means for detecting an acquisition channel;

means for receiving information relating to size and location of available operational bands in terms of size and location in the radio spectrum from the acquisition channel.

26. (Previously Presented) The mobile station of claim 25, wherein said mobile station further comprises memory means for storing the operational band relating data.

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EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.